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From: Newhart, Gary
Sent: Wed 8/19/2015 1:39:58 AM
Subject: Recommended Groundwater Sampling Approach

What do you think?

Gold King Mine Release
Assumptions:

- (a) The alluvium from Bakers Bridge south to Trimble Lane is a glacial lake remnant. The alluvium consists primarily of coarse sand and gravel.
- (b) The alluvium south of Trimble Lane consists primarily of fine sands and silts.
- (c) The hydraulic conductivity of the coarse sand and gravel aquifer is greater than the silt and fine sand aquifer.

The following sample collection protocol from the Quaternary Alluvium bounding the Animas River.

- (1) From Bakers Bridge south to Trimble Lane, collect groundwater samples from [groundwater] wells within 300 feet of the edges of the Animas River, within 300 feet of the edges of the Reid Ditch (eastern arm of the Animas River), and within 300 feet of the edges of the ditches west of the Animas River (south of Bakers Bridge). There is at least one public water supply that serves communities to the north of Bakers Bridge and west of the Animas River. If parcels are served by public water, but have private livestock wells, those private livestock may be sampled too.
- (2) From Trimble Lane to the Colorado-New Mexico state line, collect groundwater samples from parcels with groundwater wells within 100 feet of the edges of the Animas River.
- (3) Groundwater samples will be analyzed for targeted metals. Analytical results will be evaluated against primary drinking water standards maximum contaminant levels (MCLs).
- (4) A list of the recommended "to be sampled" groundwater wells has been generated. The wells that have been sampled or have been scheduled to be sampled will be accounted for on that list; the list will be forwarded to the Operations Unit Leader to schedule these parcels' well sampling.
- (5) Well logs are being collected for the targeted groundwater wells. Well construction records will be considered when evaluating the analytical results. Pre-release groundwater data is not available for all wells. United States Geological Survey (USGS) geochemical data and Colorado Geological Survey geochemical data, as well as Fort Lewis College Department of Geological Survey geochemical data are being considered

to evaluate pre-release background water quality.

(6) If the analytical data exceed the primary drinking water MCLs, the well will be re-sampled at the well and at the tap.

(7) Groundwater well samples' analytical results that exceeded MCLs a second time will be evaluated. If the exceedance is "minimal", the well will be sampled on a quarterly basis for four (4) consecutive quarters, and the resulting data and trends will be evaluated. If after the re-sample the exceedance is substantial, water will be provided or a treatment system will be installed.

(8) Based on the analytical results, sentinel groundwater wells will be established (either existing or to be installed) in areas of potential contamination, sampled and evaluated.